

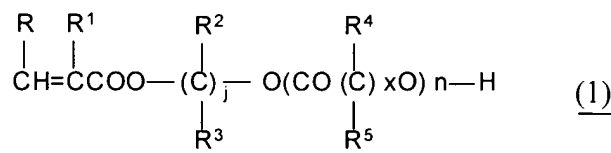
CLAIM LISTING

This claim listing supersedes all previous claim listings for this case.

Claims 1-20 are cancelled.

21. (currently amended): A curable resin composition comprising:

- (i) 0.5 – 80 parts by weight of an acrylic polyol resin (A) ~~obtained using~~ comprising
~~the~~ a hydroxyalkyl(meth)acrylate composition as claimed in claim 87 having
0.3 to less than 1.0 mole of polymerized lactone monomer being
polymerized by ring-opening with respect to 1 mole of
hydroxyalkyl(meth)acrylate, wherein the content of the lactone
monomer in the hydroxyalkyl(meth)acrylate composition is 0-10%
by weight, and
a proportion of monomers having two or more continuous chains (n ≥
2) of lactones less than 37.4% (area by GPC),
the hydroxyalkyl(meth)acrylate composition being represented by
formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

“j” is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group having a carbon number of 1-12,

“x” is 4-7,

“n” is an integer greater than or equal to zero, and

an average value of “n” in the composition is not less than 0.3 to less than 1.0,

~~in which a proportion of monomers having not less than 2 continuous chains (n≥2) of lactones is less than 50% (GPC area %), as polymerizing components, and~~

(ii) 0.5 parts by weight of a melamine resin (B),

wherein the total of (A) and (B) does not exceeding exceed 100 parts by weight.

22. (previously presented) A curable resin composition as claimed in claim 21, wherein said hydroxyalkyl(meth)acrylate composition is obtained using a hydroxyethyl (meth)acrylate.

Claims 23-45 are cancelled.

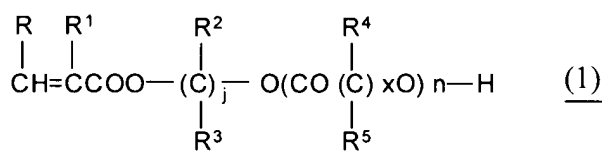
46. (currently amended): A thermosetting resin composition which comprises:
2-50 parts of an acrylic polyol resin (VII-A) containing ~~a the~~ hydroxyalkyl(meth)acrylate composition comprising

0.3 to less than 1.0 mole of polymerized lactone monomer being

polymerized by ring-opening with respect to 1 mole of

hydroxyalkyl(meth)acrylate, wherein the content of the lactone

monomer in the hydroxyalkyl(meth)acrylate composition is 0-10%
by weight, and
a proportion of monomers having two or more continuous chains ($n \geq$
2) of lactones less than 37.4% (area by GPC),
the hydroxyalkyl(meth)acrylate composition being represented by
formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

“j” is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group
having a carbon number of 1-12,

“x” is 4-7,

“n” is an integer greater than or equal to zero, and

an average value of “n” in the hydroxyalkyl(meth)acrylate
composition is not less than 0.3 to less than 1.0,

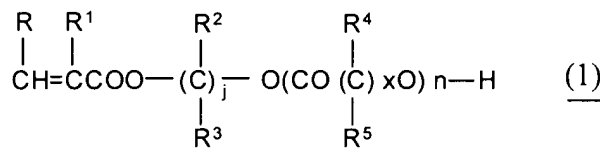
~~as claimed in claim 87, wherein a proportion of monomers having not less than 2~~
~~continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %),~~
~~and 30-80 parts of an acrylic copolymer (VII-B) having an alkoxyisilyl group,~~
~~wherein the total of (VII-A) and (VII-B) is being 100 parts by weight.~~

47. (previously presented) A thermosetting resin composition as claimed in claim 46, wherein said acrylic polyol resin (VII-A) has at least one kind of group selected from the group consisting of an acid anhydride group, an epoxy group, amino group, and carboxylic group.

Claims 48-54 are cancelled.

55. (currently amended): A method for the preparation of a carboxylic group-containing acrylate composition (a') represented by a general formula (VIII-3) described below, said method comprising:

reacting ~~the~~ a hydroxyalkyl(meth)acrylate composition, said hydroxyalkyl(meth)acrylate composition comprising as claimed in claim 87, 0.3 to less than 1.0 mole of polymerized lactone monomer being polymerized by ring-opening with respect to 1 mole of hydroxyalkyl(meth)acrylate, wherein the content of the lactone monomer in the composition is 0-10% by weight, and a proportion of monomers having two or more continuous chains ($n \geq 2$) of lactones less than 37.4% (area by GPC), the composition being represented by formula (1) described below,



where

R, R¹, R², and R³ are independently a hydrogen or a methyl group,

“j” is an integer of 2-6,

xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group

having a carbon number of 1-12,

“x” is 4-7,

“n” is an integer greater than or equal to zero, and

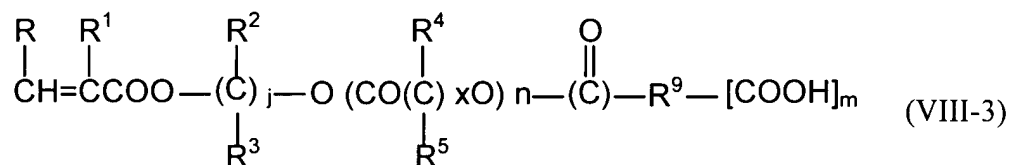
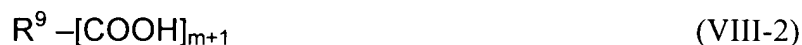
an average value of “n” in the composition is not less than 0.3 to less than 1.0,

~~in which a proportion of monomers having not less than 2 continuous chains~~

~~(n≥2) of lactones is less than 50% (GPC area %), with a carboxylic acid~~

~~or anhydride thereof (VIII-b) represented by a general formula (VIII-2)~~

~~described below,~~



(in the formula, R, R¹, R², and R³ are independently a hydrogen or a methyl group, “j” is an integer of 2-6, xn pieces of R⁴ and R⁵ are independently a hydrogen or an alkyl group having a carbon number of 1-12, “x” is 4-7, “n” is an integer greater than or equal to zero, an average value of “n” in said composition is not less than 0.3 to less than 1.0, R⁹ is a residual group of a carboxylic acid, and “m” is an integer of 1-3).

56. (previously presented) A method for the preparation of a carboxylic group-contained acrylate composition (a') as claimed in claim 55, wherein said reaction of said hydroxyalkyl(meth)acrylate composition with said carboxylic acid or anhydride thereof (VIII-b) is conducted at a temperature range of 40-160 °C.

Claims 57 and 58 are cancelled.

59. (previously presented): A curable resin composition which comprises 10-70 parts of an acrylic polycarboxylic acid resin (A') comprising:

the carboxylic group-containing acrylate composition (a'), comprising a small amount of lactones, represented by the general formula (VIII-3) as claimed in claim 55, in which a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %), as a polymerizing component, and

10-80 parts of a polyepoxide (IX-B).

60. (previously presented): A curable resin composition as claimed in claim 59, wherein said carboxylic group-containing hydroxy(meth)acrylate composition (a') is obtained by allowing to react said hydroxyalkyl(meth)acrylate composition, in which a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is less than 50% (GPC area %), with said carboxylic acid or anhydride thereof represented by the following general formula:



wherein R⁹ is a residual group of a carboxylic acid, and “m” is an integer of 1-3.

61. (previously presented): A curable resin composition as claimed in claim 60, wherein said carboxylic group-containing hydroxy(meth)acrylate composition (a') comprising a small amount of lactones is obtained by allowing to react 0.9 – 1.1 mol of said carboxylic acid or anhydride thereof with respect to 1 mol of said hydroxy(meth)acrylate composition (a) comprising a small amount of lactones.

Claims 62 – 81 are cancelled.

82. (previously presented): A method for the preparation of a polyester unsaturated monomer composition, comprising a small amount of lactones, wherein 0.3-less than 1.0 mole of a lactone monomer is polymerized by ring-opening with respect to 1 mole of a radically polymerizable unsaturated monomer containing carboxylic group, whereby, a proportion of monomers having not less than 2 continuous chains ($n \geq 2$) of lactones is adjusted to less than 50% (GPC area %).
83. (previously presented): A method for the preparation of a polyester unsaturated monomer composition comprising a small amount of lactone as claimed in claim 82, wherein an acidic catalyst is a Lewis acid or a Brønsted acid.
84. (cancelled).

85. (previously presented): A method for the preparation of a polyester unsaturated monomer composition comprising:

polymerizing, by ring-opening, 0.3 – less than 1.0 mole of a lactone monomer with respect to 1 mole of a radically polymerizable unsaturated monomer containing carboxylic group by using stannous halide, monobutyltin tris-2-ethylhexanate, stannous octoate, dibutyltin dilaurate, or a mixture thereof as a catalyst, and

separating the unreacted radically polymerizable unsaturated monomer containing carboxylic group.

86. (previously presented): A method of the preparation of a polyester unsaturated monomer composition as claimed in claim 85; wherein the catalyst to be employed in said polymerization is less than 1000 ppm by weight based on total amount to be fed.

Claims 87 and 88 are cancelled.